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REVIEW OF THE TRANSPORTATION PLANNING PROCESS IN THE KANSAS CITY METROPOLITAN AREA

February 1992

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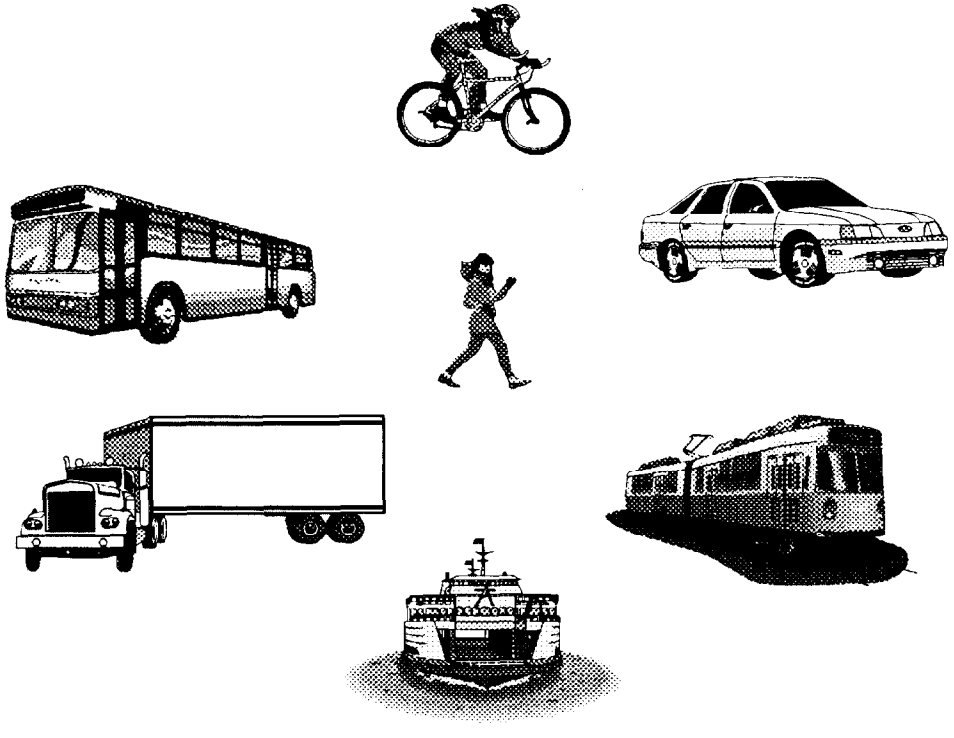

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I. Introduction

A. Background

During August 6-8, 1991, representatives from FHWA Headquarters, Division, and Regional offices; FTA Headquarters and Regional offices; and the US Department of Transportation's Volpe National Transportation Systems Center met with Missouri and Kansas Transportation Department representatives and regional representatives of the Kansas City urbanized area in order to conduct the Kansas City Urbanized Area Transportation Planning Review. Meetings were conducted with regional and State transportation and air quality representatives, the major public transit provider, and others involved with the transportation planning process (Appendix 1 -- Participants in Review and Appendix 2 -- Agenda).

Section 23 CFR 450.114 (c) of the revised transportation planning regulations, published June 30, 1983, established a self certification process which requires that the State and the Metropolitan Planning Organization (MPO) jointly certify that the Urban Transportation Planning Process (UTPP) is in conformance with Federal regulations set forth in that section, encompassing transit, highway, and clean air planning. The Federal regulations are designed to ensure that urban areas have a continuing, cooperative, and comprehensive transportation planning process that generates plans and programs which address identified transportation needs in the area, and which are consistent with the overall planned development of the urbanized area.

In an effort to grant States and localities responsibility for their transportation planning, State/MPO certification is accepted as satisfactory evidence of compliance with Federal regulations, a prerequisite for receiving Federal funds for transportation planning and projects. State/MPO certification must be provided to FHWA and FTA for review with each new or substantially revised TIP.

However, as stated in the preamble to the FHWA/FTA joint planning regulations, this does not relieve FHWA and FTA of their oversight responsibilities and the need to review and evaluate the planning process aside from and independent of the State/MPO certification. This is accomplished through periodic policy and technical committee meeting attendance and through review of related program documentation, such as the Unified Planning Work Programs (UPWP), technical reports, the TIP, and grant progress reports.

Periodic process reviews are also an appropriate mechanism for reviewing and evaluating the planning process. FHWA and FTA are required to judge the credibility of the self certification designation independently to enable the FTA Regional Administrators/Area Directors and FHWA Division Administrators to make the statutory findings required under Section 8(c) of the UMT Act and 23 U.S.C. Section 134, on behalf of the Secretary of Transportation. This ensures that the planning process is being carried out by the MPO, in cooperation with the State and transit operators, in a fashion consistent with the joint planning regulations.

This formal, comprehensive review of the Kansas City urbanized area, conducted by FHWA and FTA Headquarters and regional staff (Appendix 1), with input from state and regional transportation entities, takes the place of the 1991 compliance review of MARC, which otherwise would be conducted by FHWA and FTA regional staff. MARC has been found to be in compliance with the formal federal planning regulations of 23 U.S.C., Section 134. In addition, the review team has made a series of suggestions on planning practice, as summarized in Section VII of this report.

B. Scope of the Planning Review

The purpose of this review is to allow FHWA and FTA to determine how successfully the Urban Transportation Planning Process (UTPP) addresses regional transportation needs on a broad perspective, and whether the planning process meets the requirements of the joint planning regulations. Another purpose of the review is to assess the ability of the existing planning process to address the broader responsibilities that are being added to the process under the Clean Air Act (CAA) and the reauthorization legislation, pending at the time of this review.

Support documentation reviewed (Appendix 3) included the State Implementation Plan (SIP), TIP, Long Range Highway Plan, Transit Plan, UPWP, other MARC documents, recent joint planning review documents of FHWA/FTA on the Kansas City urbanized area, and other materials, such as media articles.

C. Objectives of the Planning Review

FHWA and FTA considered the following objectives in the review process:

- Determine if the Mid-America Regional Council's (MARC) activities are being carried out in accordance with FHWA and FTA Urban Transportation Planning Process regulations, policies and procedures.

- Determine if the UTPP is a continuing, cooperative, and comprehensive process that results in the support and development of transportation improvements for the Kansas City urbanized area.

- Determine if the UTPP involves representation and input on transportation needs from all levels of government, transit operators, the public, and other interest groups.

- Determine if the UPWP adequately covers the elements of the UTPP and reflects all transportation planning activities being performed in the metropolitan area.

- Determine if the transportation planning products, TIP and Transportation Plan, reflect the identified transportation needs, priorities and funding resources from all levels of government and the private sector.

- o Determine if the transportation planning products contain a multi-modal perspective.

- o Determine if the transportation planning products are complete and contain the most recent information available, and that the products are interrelated.

- o Determine if requirements of the Clean Air Act, as amended, and Americans with Disabilities Act are incorporated into the transportation planning process, and that objectives of these Acts are supported by transportation planning and development activities.

D. Local Transportation Issues

To understand the regional context in which transportation planning is performed in the Kansas City Region, MARC and the review team identified the following major transportation issues facing the area.

Issue 1: The urban core has been declining over the past thirty years. According to MARC's figures, the central core lost 200,000 people between 1960 and 1990, and is projected to lose almost 50,000 more by the year 2010. In addition, the employment base shrank 6 percent since 1970.

Issue 2: Criticism of the most recent transportation plan has led MARC to review its urban core strategy. Critics charge that the urban core is being left to decay, while other groups prefer to accept the urban decline as inevitable and to develop the suburbs.

Issue 3: Presently, MARC serves as a forum for bringing local governments together. The Board of Directors is contemplating whether to foster a more proactive role, initiating solutions to present and potential transportation problems.

Issue 4: MARC's structure is based on existing formal agreements, but current roles have evolved beyond the traditional agreements. The Board of Directors is examining its organizational structure and decision-making process in light of these changes.

Issue 5: Minimal congestion, increasing average speeds, and lack of other immediate transportation problems do not encourage a rethinking of the strategic plan.

Issue 6: The combined uses of the proposed Watkins Parkway corridor have not yet been determined. All right-of-way has been acquired and construction of the roadway is underway. Careful consideration is being given to whether light rail or high occupancy vehicle (HOV) lanes can be incorporated into the right-of-way, considering the neighborhood and public battles required for its acquisition.

Issue 7: The Kansas City Area Transportation Authority's (KCATA) dependence on a local 1/2 cent sales tax as its major revenue source limits its range of activities and ability to conduct long range planning. Although the sales tax is a dedicated and broad based tax, covering the Central Business District and other portions of the three counties served by KCATA, it fluctuates with the economy. Also, no dedicated funding source exists outside of the taxed region other than the present system of contracting with local governments for each mile of transit.

Issue 8: Because the pool of available funding for transportation planning and projects is limited, new sources of funding and innovation are being sought through private sector participation. For example, the College Boulevard Suburban Mobility Study for Overland Park, Kansas, is conducted by the Suburban Mobility Alternatives to Reduce Traffic (SMART) task force, with participants from the private and public sectors.

Issue 9: The proposed urban core light rail system has a projected high cost and low ridership. A cost effectiveness index created by MARC for FTA shows a cost to new rider ratio of $50.00. Simultaneously, as mentioned in Issue 1, the CBD population and employee base, which would be served by the light rail system, is declining.

Issue 10: The MARC Board of Directors is considering how best to balance maintenance of the existing transportation infrastructure and level of service against development of new capacity.

II. Organization and Management of the Planning Process

A. Metropolitan Planning Organization

The Mid-America Regional Council (MARC), a bi-state, voluntary coalition of governments from the eight counties that comprise the Kansas City Region, has been designated as the MPO by the governors of Kansas and Missouri since January of 1972. MARC provides a forum for the presentation and resolution for a wide range of metropolitan issues such as transportation, water and sewer, and housing. Members from Kansas include the counties of Johnson, Leavenworth, and Wyandotte. The members from Missouri are the counties of Cass, Clay, Jackson, Platte, and Ray.

Thirty advisory committees, comprised of Board members, technical experts, and community and business representatives, focus on specific issues such as aging services, recycling, emergency preparedness, air quality and transportation. Committees dealing specifically with transportation are the Transportation Review Committee (TRC) and the Total Transportation Policy Committee (TTPC). The TRC provides recommendations to the TTPC, which in turn advises the MARC Board of Directors. In addition, the Special Transportation Advisory Committee reports to the TTPC on FTA funded programs. Some committees have a stake in transportation issues, such as the Air Quality Forum, and therefore also participate in this arena.

Although formal agreements exist describing the roles and responsibilities of participants in the MPO, current roles have evolved beyond these agreements. The Board of Directors is currently examining its organizational structure and decision-making process. Any changes should be documented in an updated description of planning operations to ease understanding by outsiders of organizational structures and committee roles.

MARC's support staff has expertise in diverse areas, including environmental, transportation planning, and economic analysis and modelling, and forecasting.

B. Unified Planning Work Program

In accordance with joint FHWA/FTA planning regulations, MARC annually prepares a Unified Planning Work Program (UPWP) which addresses the transportation planning and management activities to be funded by each Federal modal agency.

MARC uses the UPWP as an information guide for other agencies and the public at large concerning the scope of activities related to transportation planning and management within the Kansas City Metropolitan Region (KCMR), and as an internal management tool used by MARC staff to carry out the work program of the Agency.

UPWP work items are developed primarily from constituent requests from local governmental units, and from the Agency staff. Each staff member is requested to prepare work items that

are determined to be required to fulfill Federal transportation planning requirements, as well as work items that would substantially improve the ability of the Agency to address regional planning problems.

MARC has included only Federally funded work items in its UPWP. As a result, significant planning activities of KCATA are excluded from the UPWP because they are not Federally funded. The joint planning regulations require that all transportation and all transportation planning activities be included in the UPWP whether or not they are Federally funded.

Limited planning funds and staff shortages have slowed progress in carrying out all of the work items in the UPWP, and have limited related policy analysis and documentation of the process. Despite this, there have been no audit problems, all funds are expended per annum, and progress reports (including project 'closeout' final reports) are in good order and reflect continuous progress in carrying out the work program.

MARC's UPWP is extremely well written and organized. Areas of emphasis include:

- o program management and administration;
- o general development and comprehensive planning;
- o long-range transportation planning (system level; corridor and project level);
- o financial planning;
- o short-range transportation planning;
- o Transportation Improvement Program;
- o elderly and handicapped transportation;
- o participation of private operators in the planning process;
- o rural and specialized transportation;
- o suburban mobility initiatives;
- o special studies for the private sector;
- o Kansas City airport and aviation systems planning;
- o KCATA and Johnson County transit.

Each major area of emphasis describes its objective, its status as of 12/31/90, the work program (1991-1993), major action steps anticipated for 1991, and the end products for 1991.

Several suggestions are made below to improve an already competently developed UPWP:

- All regionally significant local planning and management activities should be included in the UPWP, irrespective of funding source.

- MARC should prepare and update a bibliography on a regular basis for all UPWP end products (plans, maps, reports, technical memoranda, videos and slides, brochures, computer software and programs, etc.). The recommendation to develop a bibliography of planning documents was stated in the 1988 FHWA/FTA review of the Kansas City urban transportation planning process.

C. Self Certification

Self-certification takes place September of each year, directly before the time of TIP endorsement. The last self-certification was completed September 26, 1990. To begin the process, the Kansas Department of Transportation (KDOT) and the Missouri Highway and Transportation Department (MHTD) conduct an administrative and technical review of MARC with the help of a questionnaire. MARC prepares a certification statement signed by the Chairman and uses the administrative and technical review conducted by KDOT and MHTD to show compliance with the letter of the law. KDOT and the MHTD each provide a certification statement independently. Finally, FTA and FHWA receive the certification statements with the TIP.

III. Products of the Process

A. Transportation Plan

Periodic reviews and updates of system-wide transportation plans are important parts of the coordinated, cooperative, continuing transportation planning process. The MARC Board of Directors annually reaffirms long-range transportation plans via a formal resolution and certifies their consistency and conformity with air quality plans.

The transportation plan for the KCMR consists of both short-range and long-range elements. The long-range element identifies transportation improvements needed to accommodate estimated travel demand to the year 2010. The short-range element identifies transportation system management (TSM) improvements, including HOV lanes and expanded ridesharing services, to make more efficient use of existing transportation facilities.

The long-range street and highway plan provides the KCMR with a framework for decision-making on improvements to the area's expressway and arterial (including Kansas City's parkways) road network. The plan includes street and highway improvement projects that address four criteria: existing and committed projects; projects to upgrade problem road segments to level of service-D (LOS-D) or better; projects required to preserve system integrity (for example, strategic connectors, and widening projects to preserve lane continuity at critical sections to avoid traffic flow bottlenecks); and projects expected to serve the economic development needs of the Region.

Local and State governments began a regional approach to developing the KCMR's street and highway system with the preparation of the 1951 Expressway Plan. Periodic re-assessments and updates have occurred in 1959, 1970, 1979, with the latest revisions in August 1990.

The long-range transit element of the Total Transportation Plan (TTP) is undergoing review now with the Transition Analysis Study initiated by KCATA for the South Corridor.

Because the actual Plan was not available for direct review at the time of this report, the comments below are based solely on discussion during the site review, and limited draft material from the Plan (e.g., the Long-Range Highway Plan Information Packet, 5/11/90 and the KCATA Pre-Transition Analysis, South Corridor Study).

MARC employs a competent approach to developing the TTP for the KCMR. Suggested areas that might strengthen an already successful process include the following:

- Alternative land use and transportation 'scenarios' (as opposed to separate highway and transit) should have been considered and tested in the TTP. The TTP presented a single future 'scenario' based upon the extrapolation of historical development trends. These trends envisioned continued and accelerated decline of the urban core. As a result of

criticism of the Plan, the MARC Board of Directors accepted the Plan as an interim plan until additional studies addressing the future of the urban core are completed. The UPWP provides for the analysis of a minimum of two regional development scenarios. The Urban Core Committee is now charged with examining and testing alternative land use/transportation futures for the Region.

Critics of the Plan are concerned that linear strip development with its attendant multiplicity of access points, such as has been occurring along College Boulevard, can lead to future regional problems unless explicitly planned for as part of a land use/transportation plan.

Explicit consideration of alternative futures in the TTP (for example, promotion of local land use controls to concentrate development in suitable subareas and to avoid development intensification along major arterials) could have avoided a perception of being reactive rather than proactive in addressing relevant regional issues, and would have led to more credibility for both the planning process and the TTP produced from that process.

The specific corridor study undertaken by MARC for the College Boulevard corridor is an excellent model of how the regional TTP should evolve. In the series of studies undertaken for this corridor, explicit modeling was made of land use control decisions at the local level and the regional traffic impacts stemming from the accumulation of local jurisdictions' land use decisions (e.g., the implied buildout allowable under existing zoning ordinances; and the traffic implications of local master land use plans if fully implemented).

- Committed projects are included in the base case/no build alternative; while this is general practice, care should be taken to ensure that "committed" projects are truly committed, e.g. that the National Environmental Protection Act (NEPA) process has been completed, funding is available, and projects are programmed and proceeding to implementation, otherwise, the planning process and the TTP as its end product may not consider a full range of available alternatives.

- The long-range highway and transit elements were completed at different times (1990 and 1980 respectively) using different base networks, population, employment and land use data. Both plan elements should be prepared concurrently (because of the obvious highway/transit interactions and dependencies) using the same base networks and demographic and land use data (baseline and forecasts). This recommendation was also mentioned in the combined 1988 FHWA/FTA review of the Kansas City urban transportation planning process.

- The long-range transit element appears to be too narrowly focused. The Transition Analysis, which forms the long-range transit element, focuses on alternative alignments within a single corridor for a fixed guideway (light rail) system investment.

Broader and more fundamental issues have not been considered to an adequate degree in the planning process and within the TTP (e.g., the role of transit in the Region; the need and desirability for complementary development density standards to preserve transit as a viable modal option in selected subareas of the Region; extension of service to new large-scale development areas; and how to preserve a minimum core network at an acceptable level of service for the transit dependent).

B. Transportation Improvement Program (TIP)

Submission of projects and their priority for inclusion in the Transportation Improvement Program is by the implementing agencies, including the local governmental units, in the KCMR. There is a separate TIP for highway and transit projects; in past years, each had been done independently and at a different time from the other but, due to MARC's efforts, each component is prepared and approved concurrently to improve decision-making. This is important in order to make the required air quality conformity determination in the TIP.

MARC requests certain traffic and land use data as part of the project justification process to establish that local street and highway projects meet criteria for Federal funding. MARC also has an established committee structure to assist in the TIP programming. These include Kansas and Missouri Federal Aid Urban (FAU) committees, and the Transportation Review Committee (TRC). The TRC consists of Directors of Public Works and Traffic Engineering and is responsible for the technical review of project submissions (e.g., checking for project 'disconnects' such as lane discontinuity between adjacent road segments in adjoining jurisdictions; assuring that regional traffic interests are not compromised by local jurisdictions' requests for interchange citing and other access controls).

Project submissions for both the street and highway and the transit component are made by early July, and each TIP is adopted in September. Approximately 25 percent of the street and highway component is intentionally over-programmed in anticipation of slippage for some projects due to unforeseen circumstances. About $190M is committed each year for programmed projects. In the last year, there were three amendments made to the street and highway TIP (primarily, moving out-year projects to the current year). All amendments are endorsed by the MARC Board of Directors. All private interests are notified and encouraged to participate in the TIP process, especially for the transit projects.

MARC has a competent planning process in place to develop the TIP. The formal criteria and planning process established by KCATA for determining what services and/or facilities could be contracted out to private operators (i.e., operating efficiency criteria such as a high peak-to-base ratio, and system considerations such as distance from central services, see pp. 7-8 TIP: Public Transportation Component) is particularly strong.

Suggested improvements to the TIP process are described below:

- The documentation of the planning basis for many of the projects in the TIP is weak; it is not clear the extent of linkage or connection to the long and short range elements of the TTP, or the connection to explicit regional objectives for conservation of energy and air resources. The MARC Committees are probably making the regional connection (i.e., the evaluation of regional impacts from the cumulative implementation of local projects) via their review and adoption process, but the process could be better documented.

- The process by which the life cycle events of projects that comprise the TIP are tracked should be strengthened by MARC. Technical and financial milestones prior to construction should be monitored and reported on a regular basis. This is particularly important for certain funding sources, such as FAU funds, which are earmarked for the Kansas City area and lapse after a limited time. We recognize that this is currently being done by the States since they are ultimately the ones that lose if the funds lapse.

IV. Elements of the 3-C Transportation Planning Process and Related Activities

A. Evaluation of the Impacts of Recent Major Transportation Investments

MARC does not have a formal review process in place to evaluate the impact of major transportation investments after their completion. However, in the case of highway projects such as lane widening or new road segments, measurement of traffic counts are periodically made. In 1977, 1987 and 1990 regional travel time studies were initiated yielding average travel time contours for the KCMR, and showing general improvement in travel times. There has not been any recent major transit investment in the KCMR.

B. Monitoring, Surveillance and Reporting

State and local agencies within the KCMR direct and operate traffic counting programs. Such data and maps are collected and compiled at MARC and are used in the planning process. Traffic counts are based on short forty-eight (48) hour counts and permanent automatic traffic recorder (ATR) stations.

MARC staff collect traffic data, such as annual accident counts by location, truck accident data, maintenance responsibility of streets and highways, traffic counts, selected signal phasing and street geometries as needed. Such data are compiled within an information subsystem which was initiated in 1977.

In 1977, the VMT/PMT study was initiated using traffic data available from State and local jurisdictions and collected from numerous other jurisdictions. An analysis of the total estimated vehicular and personal travel was made. Monitoring travel changes is done each year. In 1981 through 1988 traffic count data were again collected for an analysis of vehicle travel in the Region.

A survey of area traffic conditions was completed in 1986. In 1988, a travel time and auto occupancy study was completed based on a 1987 travel time and delay survey. In 1978, a parking characteristics study for the major urban activity centers within the KCMR was conducted and an analysis of the results was completed in 1980. During 1988, 1989 and 1990 a survey to obtain travel characteristics of Regional Rideshare Program participants was conducted. Auto occupancy studies have been conducted annually since 1987. Transit data were collected in 1983 through 1985 to ascertain changing transit conditions. Census (UTPP) data were reviewed and have been used since 1983. In conjunction with other (1990) census related activities, a 1990 travel time study was initiated to indicate performance of major KCMR streets and highways. Screenline and cordon counts are initiated approximately every three years.

Development and land use changes in the KCMR are monitored very carefully. MARC uses a GIS (MAPINFO) to maintain a land use data base by regional zones. In addition to tracking new developments (using local development departments' occupancy and permitting data),

MARC subscribes to a National Planning data base for the KCMR and is in close liaison with developers, local community development departments, chambers of commerce, and large employers.

Employment data are also closely monitored. MARC subscribes to a Dun and Bradstreet data base for the KCMR. Employment data are maintained by Traffic Analysis Area (TAA) zones.

Monitoring and surveillance activities, as enumerated over the prior two decades, are very competently done at MARC.

C. Ongoing and Corridor Multi-Modal Approach

Corridor and special technical transportation studies are conducted on a request basis. A study of travel conditions in the I-35 corridor was completed during 1982-1983. This study resulted in recommendations for improvements to increase the roadway capacity and provide for more efficient traffic operations through several interchanges.

In 1981, the Southtown Corridor Refinement Study was completed, which reviewed the need for major transit improvements in the corridor running south from downtown Kansas City, Missouri.

In 1985-1986 a study of improvements needed to handle traffic in the Brookside/Main Corridor, from the Country Club Plaza south to Brookside, was completed. This study was initiated due to current traffic service deficiencies as well as the expected increase in traffic due to current and planned development in the Plaza area. In 1989, an operational analysis was conducted of the I-35 corridor. The I-435 corridor is expected to be investigated for possible application of ramp metering.

Technical studies, of existing and proposed interchange locations, have been conducted over the last four or five years. Several of these locations are I-35 and Antioch, I-435 and Nall, I-70 and Selsa Road, and I-470 and View High Drive.

Major subarea studies that have recently been completed include the SMART study, a series of detailed investigations of the College Boulevard corridor in Overland Park, Kansas. These investigations included an extensive data collection and inventory of current traffic conditions, the development and exercise of a transportation model, and an assessment of traffic demand management strategies. As part of that assessment, an employee-based attitudinal survey was conducted to obtain a better understanding of the public perception of transportation conditions, and to gain a better knowledge of how commuters travel and what opportunities exist to change their current travel habits. MARC hopes to be able to use the subarea survey as a check on their existing travel demand modeling procedures (and to update as appropriate).

At the request of the FHWA Kansas Division Office, MARC's I-35 and I-435 studies were initiated. Three local jurisdictions had hired three independent consultants to look at three independently proposed interchanges within a three mile segment. None of the consultant studies

looked at the system effects of the corridors in question (for example, the combined effect of the three closely spaced interchanges on the traffic operations of the interstate segments as well as the local access roads and parallel arterials). None of the consultant reports agreed on probable impacts. MARC's I-35 and I-435 studies were able to examine the regional system impacts in a consistent, coordinated and comprehensive manner.

The reverse commute study, undertaken by MARC to try to address the mobility problems of the inner city poor in reaching suburban employers, was notable in its findings that transportation was not the key problem; low pay, few benefits, poor and inflexible work scheduling, the need for ancillary social services such as day care, and long distances were at the heart of the problem.

Corridor studies that have been initiated by MARC have generally been undertaken as the result of a locally perceived problem brought to the 'table' by a local governmental unit within the KCMR through a "bottoms up" approach. This is in contrast to a "top down" approach, where corridor studies are prioritized and identified through the formal planning process.

The SMART initiative, focusing on pressures resulting from development along College Boulevard and the surrounding arterials and interchanges, is an example of this bottoms up process. The local perception of problems of rapid growth of traffic stimulated MARC to examine in detail associated regional impacts. Selection of this corridor for attention was further encouraged because the local problem coincided with FTA special emphasis areas ("suburban mobility and congestion"). MARC was able to secure FTA funding for the studies, and respond to local government requests. Other corridor studies, such as the I-35 and I-435 studies on the effect of alternative sites for interchanges, were also generated by this bottoms up approach. To summarize, MARC has a very competent and professional approach in its conduct of corridor and subarea studies. The study designs and the framing of issues to be addressed are very well thought out. MARC could consider strengthening the long range planning process that produces the long range Transportation Plan so that it could also serve as a source for screening and identifying problem corridors for further detailed planning and analysis.

D. Consideration of Air Quality

Attainment Status

The Kansas City Metropolitan Area is in attainment for carbon monoxide, and is a potential attainment area for ozone, waiting for redesignation of its nonattainment status from the Environmental Protection Agency (EPA). Upon redesignation, according to Section 175 of the CAA, the Region will be considered an attainment area but must also use its SIP as a maintenance plan to keep emissions at allowable levels. The ozone maintenance plan MARC is currently developing will be used by the EPA as a national model. MARC is the existing Section 174 agency for development of the SIP for the area.

Contingency Actions/Transportation Control Measures (TCMs)

Transportation control measures are recognized and incorporated into the SIP to guide appropriate action in the event that emissions rise to unacceptable levels. Because of the Region's anticipated attainment status, Inspection/Maintenance, anti-tampering, or other TCMs are required only as contingency actions in the SIP, according to Section 175 (d) of the CAA. The contingency measures are to be implemented in the event of violations that occur after the 1992 Federal Phase II implementation of Volatile Organic Compound (VOC) controls, which will reduce gasoline volatility to 7.8 psi Reid Vapor Pressure (RVP).

The contingency actions are TCMs used in conjunction with an ozone safety margin, which was created by voluntarily restricting the volatility of gasoline supplied to the Region from 9.5 psi RVP to 9.0 psi RVP during the 1991 ozone season. The emissions reductions achieved during that time frame were used to set the range for the safety margin. The safety margin triggers an alert if levels rise high enough to threaten attainment status.

Transportation control measures are triggered if VOC emissions threaten attainment status by falling into the safety margin. They are listed in the SIP as trip reduction programs, transit improvements, traffic flow improvements, alternative fuels programs for fleet vehicle operations, vehicle anti-tampering programs and any other measures which may be discovered in the future. Federal violations occur when emission levels rise above the safety margin and are met, in addition to using the TCMs previously listed, by implementing Stage II vapor recovery or an enhanced Inspection and Maintenance program, or both if necessary. Further control measures target stationary sources of emissions.

Selected transportation demand and system management measures are listed in MARC's Long-Range Highway Plan as options that could be considered to improve capacity and decrease congestion without building additional highway capacity. The measures identified include land use development policies and travel behavior modification (TBM) policies. TBM policies include rideshare/carpool programs, HOV lanes, ramp metering, and mass transit programs.

Funding support for the contingency actions is not included in the TIP, Public Transportation Component for 1991-1995. If the need for control measures arose, funding would have to be sought through procedures that exist for project revisions of the Annual Element of the TIP.

Volatility control is the major ozone reduction strategy adopted due to high effectiveness, wide distribution, equitable cost sharing, and low cost compared to other methods. The Missouri Department of Natural Resources (MDNR), in the SIP, certifies that enforcement of VOC reductions is occurring, however the methods used to determine this are not defined.

Emissions Inventory

Because of the Region's potential attainment status, the VOC Mobile Source Inventory is used as an ozone maintenance plan rather than a nonattainment plan. However, because of past

Federal violations of ozone levels, forecasts demonstrating maintenance of acceptably low levels of ozone through the year 2000 are included in the emissions inventory. The most current population, employment, and travel data used was adopted by the MARC Board of Directors in 1988, but will be updated with the 1990 Census information. Local and Federally funded street and highway projects committed to the year 2010, listed in the draft Long-Range Transportation Plan, have been included in the emissions inventory.

The emission inventory estimates VOC emissions from both exhaust and evaporative sources throughout the five counties that constitute the Kansas City ozone planning area. Two measures are used: VOC emission factors (in grams per mile) combined with estimates of average summer weekday VMT (based on a five day work week). The MOBILE4 computer model, developed by the EPA, is used to determine average rates of VOCs emitted for each mile of travel.

When possible, local information is used to create the factors that are input to MOBILE4. However, national defaults are used when incomplete or insufficient information is available. Factors representing gasoline volatility, and thus evaporation, are included. No Inspection/Maintenance or anti-tampering factors are presently input, as these are not required for attainment status. For the same reason, no factors for Stage II or on-board vapor recovery are included.

These numbers are combined with travel estimates to arrive at the VOC mobile source emission inventory. The travel data base was developed using Federal Highway Administration transportation models, estimates of vehicle miles traveled, provided by KDOT and MHTD, and regional speed surveys. Future VMT was taken from projections in MARC's Interim Long-Range Transportation Plan.

Coordination of Air Quality Activities with the Unified Planning Work Program (UPWP)

The Unified Work Program contains action steps for coordinating the information and interest groups necessary for a cohesive transportation planning process which is integrated with air quality and related issues. Action steps ensure the gathering and updating of economic, demographic, and transportation data needed for the emission inventory. Action steps are also included to coordinate MARC committees and others influencing regional transportation and air pollution activities to develop the UWP, collecting information, and participating in long and short range transportation planning. Finally, the UWP includes steps to create the TIP, which appropriately considers air quality and energy.

Conclusion

MARC has made special efforts to coordinate transportation and air quality planning, to reach attainment status, and to develop contingency measures that could be implemented in the future if monitoring indicates the need for them.

E. Outreach Efforts

MARC uses an extensive committee structure to bring all the local governmental units within the KCMR and other interested parties into the planning process. Public meetings are held as an integral part of the preparation of the Total Transportation Plan for the Region. The urban core investigation currently underway has held twelve public meetings since its inception in February 1991. MARC prepares general brochure information (e.g., on Air Quality in the Region; on Rideshare Services and Programs) for distribution to the public at large.

The outreach efforts of MARC could be improved with formal written summaries of the results of the meetings.

V. Tools, Skills and Data for Transportation Planning

A. Travel Demand Forecasting

MARC uses the conventional four-step sequential process to support its long-range transportation planning activity. The process starts with long-range forecasts of population, households and employment. Control totals are first developed for 184 regional analysis areas (RAAs). Agreement is reached by the constituent agencies in KCMR for the RAA control totals. These are then disaggregated to approximately seven hundred (700) traffic analysis zones (TAZs). The long-range forecasts for population, households and employment factor into the first of the four-step process, trip generation.

Before the forecasts can be developed, several additional inputs are needed. These include:

- o models of urban development;
- o employment trends by small area;
- o population and household trends by small area;
- o location of existing and planned physical facilities, such as office buildings, shopping centers, industrial parks, multi-family housing, hospitals and schools (i.e., large traffic generators);
- o land use by zone/official street map (used to define and/or modify TAZ boundaries).

The last set of small area population and employment forecasts was adopted by the MARC Board of Directors in January 1988. As the travel implications of these forecasts were discussed, several concerns were raised about building facilities to accommodate greater suburbanization (in consonant with existing and projected development trends) while the urban core of the Region continued to decline. At the same time, it became apparent that the forecasts needed to be updated since Census Bureau estimates of the Region's 1988 population already exceeded the forecast's prediction of 1990 population.

MARC uses a spreadsheet model for trip generation. Independent variables include: households by income quartile; employed persons by household by income group; and residential density. No level of service LOS variables for transportation options factor into trip generation. Productions ('P's) and Attractions ('A's) are computed, with balancing based on Attractions by zone. Trip distributions and assignments have traditionally been made by the State highway departments (KDOT and MHTD) using the UTPS modeling system (capacity restraint assignments, using a fixed inelastic trip table). Assignments have been based on an average 24 hour weekday trip table (derived from a gravity model formulation). Although MARC described

simulation validations (i.e., comparisons of simulated traffic loadings versus actual traffic counts on selected strategic links), the results of these validations are not formally documented, and were not available for review.

The last O/D survey was made in 1970. Limited employer-based surveys have been made subsequently, but the trip patterns and trip distributions still heavily rely on the 1970 data, despite some recent changes in trip patterns. For example, current travel patterns are occurring that are not based upon shortest trips, and there is a significant number of non-home based trips now occurring in the peak period. MARC shared the concern expressed by the site review team about the age of the data, considering changes in the character of the Region since 1970.

The UPWP contains an item to conduct a very small area-wide household origin and destination study to see if the models need to be updated. Any decision on the need for additional O-D surveys should be deferred until the results of this survey and the information available from the 1990 Census Transportation Package have been considered.

For modal split, MARC has adapted a logit model that was first developed for New Orleans by Barton Aschman Assoc. KCATA transit ridership surveys have been used to modify the model for KCMR use. Since actual regional modal split is less than one (1) percent transit, the models that have been used by MARC tend to actually overestimate transit attraction and projected use.

MARC's interim transportation plan identifies corridors where HOV lanes may be considered. The UPWP contains an item to initiate research and technical analysis to determine the applicability of available software to model the impact of HOV lanes and ramp metering. Discussion on this subject indicates that MARC believes there is a deficiency in the state-of-the-art for modeling the system effects of HOV lanes. While MARC may not have the capability, currently, of modeling HOV lanes, mode choice procedures can be modified to reflect the effects of HOV lanes. Limited technical assistance on this subject can be provided by FHWA. MARC should note, however, that upgrading mode choice procedures to reflect the impacts of HOV lanes will likely involve the use of an outside contractor for technical support of the effort.

Recently, MARC has acquired EMME/2, a very sophisticated microcomputer-based transportation modeling package (Multipath transit assignments are supported; multiple highway and transit networks can be kept on-line). MARC intends to bring within the Agency the full complement of modeling capability. EMME/2 will allow MARC to test and analyze many more alternatives, which will substantially improve MARC's long and short range transportation planning processes. Staff is currently learning how to use the new software. The site review team was given a demonstration of its capabilities. MARC is fortunate to have a very competent and professional technical staff.

Recommendations for enhancing MARC's capabilities in the area of tools, skills and data include:

- MARC may want to consider an upgrade to its GIS system to permit more attribute data to be collected and used, and to allow for more sophisticated data base display and overlay capability; any GIS upgrade should be compatible with EMME/2 to allow data export and import between the two software applications.

- MARC should consider upgrading its mode choice model to reflect the impacts of HOV lanes.

B. Costing Methodologies

In general, MARC cost methodologies are both competent and appropriate. The long-range transit element of the transportation plan consists of the transition analysis undertaken by KCATA and its contractors. Capital and Operating and Maintenance (O+M) costs for the transit component were developed by Subhash Mundle Assoc. Actual costs for building light rail systems in other cities were used to estimate capital costs for the light rail alignment presented in the transition analysis document.

KCATA operating and maintenance costs for bus service (using local wage rates) were used to approximate projected O+M costs for the light rail system. Capital costs associated with fleet replacement and modernization are based on standard engineering cost estimates using actual life cycle data for the current fleet.

For new highway projects, capital costs are based on surveys of locally completed projects. No right-of-way (ROW) costs, however, are included in the capital cost estimates. O+M costs are also based on local data; generally, O+M costs per annum are calculated as a standard percentage of capital costs. However, historical O+M costs actually incurred are looked at as a consistency and feasibility check for projects documented in the TIP. Police services are not included as allocated O+M costs for highway projects.

VI. Ongoing Transit Planning

A. Organizational Issues

KCATA has an unpublished strategic plan which they consider a valuable source of long range goals and objectives, although it is five years old. In addition to general goals, phased objectives, and measures of success, the plan provides useful indications of probabilities of attainment, and comments on relevant considerations. The emphasis of the strategic plan is on the vitality of the urban core, which is not a high priority objective for the interim Regional Plan, as discussed above.

The Strategic Plan could be revised to reflect current operating situations, possibly in coordination with the policy emphases of the final Regional Plan, which is being prepared. For example, the Strategic Plan focuses on fixed route bus service, and could be broadened to incorporate other modes, particularly plans for fixed route service and the evolving TSM and congestion management (TCM) strategies. Both MARC and KCATA agreed that TSM and TCM strategies have been neglected in the planning efforts of both organizations, and should receive additional attention in the future.

KCATA only provides MARC with summaries of Federally funded plans and programs for inclusion in the UPWP, Transportation Plan, and TIP for the Region. For example, significant planning activities that are funded locally or with State resources are not included in MARC's planning documents.

B. Performance of Existing Service and Development of New Service

KCATA conducts regular evaluation of service performance using a standard set of indicators, including subsidy per unlinked trip and load factor (unlinked passenger trips per mile). Load factor is a measure of load at particular points, rather than passenger miles over capacity of vehicle miles, which measures loads on complete trips or segments. Although passenger miles are collected for FTA reports, KCATA believes that the cost of accuracy for this measure is greater than its analytic value.

KCATA relies on MARC for demographic planning data and modelling support. Kansas City maintains a good data base and also assists with applications of its own Geographic Information System. KCATA collects ridership and fare data from its registering fareboxes, and conducts attitude surveys every two years.

Determination of the need for new services is reactive to community requests, rather than based on systematic criteria, using indicators as "flags." KCATA is reactive primarily because of the limitations of its sales tax revenue base, which acts as a ceiling. There is not enough money to aggressively search opportunities to expand.

KCATA employs the avoidable cost model annually to determine costs of route operations.

C. Capital Planning (Transit Structure, Vehicle and Equipment Planning)

As an operator primarily of a single mode -- fixed route motor bus -- in an area where it is the only significant property, KCATA's capital planning is fairly straight-forward. KCATA employs life-cycle analysis to determine its fleet needs, and currently projects a requirement for 140 new buses. KCATA also conducts periodic evaluations of facilities as inputs to capital planning.

D. Transit Management Analysis

KCATA performs analysis of service productivity on a routine annual basis; some analysis also coincides with quarterly picks. Other evaluation occurs as needed, typically signalled by ridership or revenue trends, or new developments. KCATA does not use automated scheduling software, such as RUCUS; automated run-cutting is considered adequate for the system's needs.

KCATA develops, analyzes, and updates training programs for drivers.

Organizational structure is evaluated annually in internal studies.

KCATA has a rigorous safety planning program, with detailed measurement of revenue service accidents and other occupational injuries in precise categories. Remedial safety programs include training.

E. Financial Planning

Detailed financial planning is completed annually, and involves continually updated projections. KCATA pays particular attention to the financial capacity of its member communities, which provide revenues on a contract for service basis. As a result of this analysis, KCATA was able to identify its last fare increase three years in advance. KCATA completed a financial capacity analysis and review of current conditions in March 1991, as part of the pre-alternatives analysis for the South Corridor.

F. Planning for the Americans with Disabilities Act

At the time of the review, KCATA was waiting for the FTA Americans with Disabilities Act (ADA) regulations to be finalized. Of particular interest to KCATA is whether the new regulations can best be satisfied through individual or joint plans -- it has already begun discussion with other area providers on strategies.

There was concern about the cost and effort of complying with the new requirements. KCATA is in the midst of an earlier 504 accessibility plan, that will reach 50% accessibility for its fleets over a six year period. As of 1989, all routes (not vehicles) were accessible. KCATA noted that they average only 26 weekly elderly/handicapped trips on fixed route service.

G. Outreach Activities

KCATA takes a thorough approach to incorporating public participation in the planning process.

Citizen participation has three aspects:

1) KCATA's projects included in the TIP receive public comments through the MARC review process;

2) Citizens have the opportunity to comment on proposed fare and service changes before the KCATA reaches its decisions;

3) Specific project and activities have their own comment mechanisms -- fare changes are commented on by a KCATA Advisory Board, which includes minority and social service representatives; study committees are appointed for special activities, including for development of the South Corridor and Share Fare project.

Hearings are held in minority communities to allow comments on route changes.

KCATA also described the full consideration given to potential services that could be provided by minority business enterprises. For example, these enterprises have provided 20% of the effort on urban rail studies.

KCATA takes a "brokerage role" to encouraging private sector participation whenever it makes "good business sense." For example, KCATA serves as project manager to a community that declined directly operated public service, and preferred to contract out, and competitive procurements have been employed for three line haul routes and 100% of all demand response service. KCATA maintains a current list of qualified private providers, and uses to fully allocated model in identifying candidate services for contracting out.

Criteria used to identify opportunities for privatization include: peak/base ratio; proximity to KCATA operating facilities; cost comparison; transfers; geography; type of operation (express and circulator are strong candidates); and ridership density.

Although KCATA identified union work rules as a key impediment to contracting out, it noted that local unions have been very flexible in allowing modifications to rules.

Public-private partnerships have been limited to some outside facilities, including walkways built through a joint venture with a bank.

H. Planning for a Drug-Free Work Place

KCATA has a fully developed drug free work place program. The concrete policies approved by the Board were developed through planning and analysis. KCATA has a testing program for cause, and an eleven year old employee assistance program.

I. Transit Capital and Operating Plans

KCATA provides the cost break-downs for five year capital and operating plans in the TIP. Although brief descriptions of assumptions are provided (e.g., the operating program assumes maintenance of existing service), the TIP does not provide supporting analysis or further explanation or justification. Support for the assumptions in the plans may be provided in various other KCATA technical documents, but these are not reviewed by MARC as part of the TIP preparation.

VII. Findings

1. The update of the Transportation Plan should include:

   A. A multi-modal approach in the development and analysis of alternatives;

   B. Description of transportation goals and objectives, and how these objectives are consistent with the land use plans, urban development objectives, and the area's overall social, economic, environmental and energy conservation goals and objectives;

   C. Transportation System Management/Congestion Management Strategies;

   D. Discussion of operating and capital costs;

   E. Fiscal analysis to determine whether the alternatives were cost effective and financially feasible;

   F. A short-range and long-range multi-modal strategy to implement the plan (staging strategy);

   G. Long-range highway and transit elements should be prepared concurrently using the same base networks and demographic and land use data. The recommendation of using the same land use plan and socio-economic projections for a comprehensive transportation plan was made in the 1988 joint FHWA/FTA review of the Kansas City urban transportation planning process;

   H. Continuation of the analysis of alternative land use and transportation scenarios as part of the update process;

2. Suggestions for improvements to the TIP process are:

   A. Transit and highway projects for the TIP should be developed concurrently and included in a single TIP.

   B. Documentation of the planning basis for many of the projects in the TIP should be strengthened, particularly to clearly establish linkage to the TTP, and to explicit regional objectives, including air quality.

3. Suggested modifications to the Unified Planning Work Program include:

   A. Reflect all transportation planning activities being performed in the regional area, including major activities that are solely State or locally funded.

      Significant planning efforts by KDOT, MHTD, and KCATA should be incorporated into the UPWP to contribute to a comprehensive view of multi-modal planning underway in the Region.

   B. MARC should prepare and update a bibliography on a regular basis for all UPWP end products (plans, maps, reports, technical memoranda, videos and slides, brochures, computer software and programs, etc.). The recommendation to develop a bibliography of planning documents was stated in the 1988 FHWA/FTA review of the Kansas City urban transportation planning process.

4. KCATA and MARC should work together to coordinate responsibilities for including TSM and TCM strategies in the plans of each organization.

5. The review team commends MARC on its special efforts to reach air quality attainment status and to coordinate transportation planning and air quality planning.

APPENDIX 1

Participants in Kansas City Pilot Review

FTA

Headquarters:
Brian Sterman, Deputy Regional Administrator (Region II)

Midwestern Region:
Lee Waddleton, Area Director
Chuck Donald
Joan Roeseler

Federal Highway Administration

Headquarters:
Dean Smeins, Chief, Planning Operations Branch

Region 7:
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David Edwards
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Mid-America Regional Council

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APPENDIX 1, Cont.

Missouri Highway and Transportation Department

Larry Kopfer

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Larry Wanbaugh

APPENDIX 2

Agenda for Urban Transportation Planning Review Meeting

August 6-8, 1991

Mid-America Regional Council
600 Broadway, Suite 300
Kansas City, Missouri

Tuesday, August 6

9:00 - 9:30		Arrival.
9:30 -	Lee Waddleton FTA	Welcome and introductory remarks.
	Brian Sterman, FTA Dean Smeins, FHWA	Objectives for planning review.
	MARC	Introductory remarks.
		Introduction of participants.
10:30 -	Bill Lyons USDOT/VNTSC	Overview of meeting and schedule.
		Break.
		Discussion of urban transportation planning process (Roman numerals following topics below refer to attached questionnaire, which provides discussion questions).
		Format for general sessions - topic overview from MARC with discussion led by review team members.
	FTA Regional and FHWA Divisional staff	How the process works in the Kansas City Region.
		Local transportation issues (I.B).

		Organization and management of the process -- Agencies' roles and responsibilities (II).
		Products of the process (III).
Tuesday, August 6 (continued)		
1:15 - 4:30		Continue discussion.
	Mike Jacobs, VNTSC	Elements of 3-C process (multi-modal dimension) (IV).
	Brian Sterman, FTA	Approach to air quality (Clean Air Act) (IV.D).
Wednesday, August 7		
9:00 - 12:00		**Parallel sessions.**
		Breakout session
	Mike Jacobs, VNTSC	Transportation planning techniques (V). (Focus on applications for the Kansas City Area Transit Authority.)
		Travel demand forecasting.
		Costing methodologies.
		General session
	Brian Sterman, FTA	Ongoing transit planning (VI).
		Organizational issues - strategic planning (VI.A).
		Service performance and development (VI.B).
12:00 -12:45	Lunch	

APPENDIX 2, Cont.

12:45 - 5:00		**General session** (continued)
		Structure, vehicle, and equipment planning (VI.C).
		Transit management analysis (VI.D).
Wednesday, August 7 (continued)		
		Financial planning (VI.E).
		Americans with Disabilities Act (VI.F).
		Outreach activities (citizen and minority participation, DBE, private sector involvement) (VI.G).
		Planning for a Drug-Free Work Place (VI.H).
		Transit Capital and Operating Plans and Programs (VI.I).
Thursday, August 8		
9:00 - 12:00	Brian Sterman, FTA	Meeting summary -- Findings and Follow-up Actions (VII).
		Regional concerns.
		Next steps.

APPENDIX 3

Documentation Provided By Kansas City Regional Agencies

MARC

State Implementation Plan - "Missouri State Implementation Plan for Ozone, Kansas City Metropolitan Area Maintenance Provisions, Draft Revisions, October 1990"

Unified Planning Work Program - "Unified Work Program for Regional Transportation Planning and Management in the Kansas City Metropolitan Region, 1991-1993"

Transportation Improvement Program - "Transportation Improvement Program, 1990-1994, Kansas City Area Transportation Authority"

Long Range Transportation Plan - "Mid-America Regional Council's Draft Long Range Highway Plan - Information Packet"

Emissions Inventory - "VOC Mobile Source Inventory, Kansas City Ozone Planning Area, July 1990"

"Draft Scope of Work for Completing TIP and Long-Range Transportation Plan Interim Conformity Determination"

"Summary of Public Discussions, Urban Core Growth Strategies Committee"

Pamphlets:

- Air Quality
- Rideshare
- Flextime
- Reducing Suburban Congestion, Parts 1 & 2
- Dataline
- The Commuter

KCATA

"Driving Resource Guide"

"Five-Year Goals, 1987-1991"

"Inter-office Correspondence on 1991 Workers' Compensation Claims"

"Pre-Alternatives Analysis Transition Study"

APPENDIX 3, Cont.

"Pre-Alternatives Analysis Transition Study of the South Corridor"

"Transit Service Evaluation, Summer, 1991"

"Vehicular Accidents, 1979-1990, Metro buses"

FHWA/FTA

1988

"Report on Review of the Urban Transportation Planning Process, Mid-American Regional Council (MARC), Kansas City Urbanized Area"

"Transit Portion of the 1988 Kansas City Urbanized Area Transportation Planning Process Review"

1984

"Kansas City Area Transportation Planning Process Review"

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